CLAIMS

1. A switch card, comprising:

a plurality of switching elements, wherein the plurality of switching elements are

5   arranged to form a switch configuration; and

N number of payload interfaces, wherein each of the N number of payload

interfaces is coupled to interface with one of a plurality of payload slots, wherein the N

number of payload interfaces are coupled to the switch configuration such that a latency

function is minimized for the switch configuration and a set of N payload module

10   configurations, and wherein the set of N payload module configurations is characterized

by a sequential addition of a payload module into each of the plurality of payload slots.

2. The switch card of claim 1, wherein the latency function is a root-mean squared

latency function.

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3. The switch card of claim 1, wherein the latency function is an arithmetic mean

latency function.

4. The switch card of claim 1, wherein the latency function is a normalized root-

20   mean squared latency function.

5. The switch card of claim 1, wherein the latency function is a normalized

arithmetic mean latency function.

25   6. The switch card of claim 1, wherein the sequential addition comprises a first

end to a second end sequential addition.

7. The switch card of claim 1, wherein the sequential addition comprises a second

end to a first end sequential addition.

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8. The switch card of claim 1, wherein the plurality of switching elements

comprises M number of switching elements coupled to the N number of payload

interfaces, wherein each of the M number of switching elements has a plurality of ports,

and wherein the sequential addition comprises populating all of the plurality of ports on one of the M number of switching elements, one of the M number of switching elements at a time.

5   9. A network, comprising:

a switch card having a plurality of switching elements, wherein the plurality of switching elements are arranged to form a switch configuration;

N number of payload interfaces coupled to the switch configuration, wherein each of the N number of payload interfaces is coupled to interface with one of a plurality of

10   payload slots; and

a set of N payload module configurations, wherein the set of N payload module configurations is characterized by a sequential addition of a payload module into each of the plurality of payload slots, wherein the sequential addition of the payload module couples the payload module to the network, and wherein the N number of payload

15   interfaces are coupled to the switch configuration such that a latency function is minimized for the switch configuration and the set of N payload module configurations.

10. The network of claim 9, wherein the latency function is a root-mean squared latency function.

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11. The network of claim 9, wherein the latency function is an arithmetic mean latency function.

12. The network of claim 9, wherein the latency function is a normalized root-

25   mean squared latency function.

13. The network of claim 9, wherein the latency function is a normalized arithmetic mean latency function.

30   14. The network of claim 9, wherein the sequential addition comprises a first end to a second end sequential addition.

15. The network of claim 9, wherein the sequential addition comprises a second end to a first end sequential addition.

16. The network of claim 9, wherein the plurality of switching elements comprises M number of switching elements coupled to the N number of payload interfaces, wherein each of the M number of switching elements has a plurality of ports, and wherein the sequential addition comprises populating all of the plurality of ports on one of the M number of switching elements, one of the M number of switching elements at a time.

17. A switch card, comprising:

a plurality of switching elements, wherein the plurality of switching elements are arranged to form a switch configuration; and

N number of payload interfaces, wherein each of the N number of payload interfaces is coupled to interface with one of a plurality of payload slots, wherein the N number of payload interfaces are coupled to the switch configuration so as to minimize an all-to-all transfer time based on minimizing a latency function for the switch configuration and a set of N payload module configurations, and wherein the set of N payload module configurations is characterized by a sequential addition of a payload module into each of the plurality of payload slots.

18. The switch card of claim 17, wherein the latency function is a root-mean squared latency function.

19. The switch card of claim 17, wherein the latency function is an arithmetic mean latency function.

20. The switch card of claim 17, wherein the latency function is a normalized root-mean squared latency function.

21. The switch card of claim 17, wherein the latency function is a normalized arithmetic mean latency function.

22. The switch card of claim 17, wherein the sequential addition comprises a first end to a second end sequential addition.

23. The switch card of claim 17, wherein the sequential addition comprises a second end to a first end sequential addition.

24. The switch card of claim 17, wherein the plurality of switching elements comprises M number of switching elements coupled to the N number of payload interfaces, wherein each of the M number of switching elements has a plurality of ports, and wherein the sequential addition comprises populating all of the plurality of ports on one of the M number of switching elements, one of the M number of switching elements at a time.